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NASA'S FISSION SURFACE POWER PROJECT

Abstract

Small nuclear fission systems are powerful and could enable robust space operations for planetary habitation and exploration. On Earth, unless disrupted by storms or grid problems, electrical power for most people is no further than an outlet away. However, the solar system does not provide such easy access to electricity as we know it. Astronauts could take advantage of a reliable power supply to explore both the Moon and Mars. The system will need to be lightweight and capable of running regardless of its location, the weather, or available sunlight and other natural resources. NASA's Fission Surface Power (FSP) project expands on the efforts of the agency's Kilopower project, which ended in 2018. Currently, NASA is working with the US Department of Energy and industry to design a fission power system that would provide at least 40 kilowatts of power – enough to continuously run 30 households for ten years. A future lunar demonstration will pave the way for sustainable operations and even base camps on the Moon and Mars. This presentation will showcase the current state of the FSP project, technical goals and accomplishments, future plans, and how this technology paves the way for exciting future applications.